

LX.—*Descriptions and Records of Bees.*—XLVII.

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Ceratina læta, Spinola.Trinidad, March 1912 (*Hugh Scott*). New to Trinidad.*Ceratina minima*, Friese.Trinidad, March 22, 1912 (*Hugh Scott*). Three males, marked "Diego Martin; herbage by stream."*Nomada (Micronomada) jamaicensis*, sp. n.

♀. Length a little over 6 mm.

Ferruginous, including the legs, but the abdomen mainly black above; head broad; basal part of mandibles broadly pale yellow; sides of face broadly light yellow, this colour ending obtusely a little above level of middle of front, and below ending about level of middle of clypeus; labrum blackish in middle; clypeus, supra-clypeal area, front and cheeks bright ferruginous, the cheeks with a broad yellow stripe along upper part of orbits; interocellar region blackened; antennæ entirely ferruginous, third joint longer than fourth; thorax above densely and coarsely punctured, the ridges between the punctures shining; upper border of prothorax, tubercles, scutellum, band on postscutellum, two large patches on metathorax, and very large transverse patches on pleura, bright yellow; mesothorax suffused with black in middle posteriorly, and area of metathorax also blackish; the extremely scanty pubescence of thorax light fulvous above, white at sides; tegulæ creamy white, punctured. Wings long, with a conspicuous dusky apical cloud; stigma ferruginous, nervures fuscous; b. n. meeting t.-m.; second s.m. receiving first r. n. before middle. Legs bright red, hind coxæ with a large yellow mark, hind tibiæ slightly yellowish at base; spines of anterior coxæ short, but very distinct. Abdomen very finely punctured: first segment with a broad yellow band, narrowest in middle, the part before the band dark red; second segment with a yellow band which is extremely broad at sides, but greatly narrowed, or even broken, in middle; third and fourth segments with a large yellow mark on each side, fifth with a band (these markings often largely concealed by the retraction of the segments); apical segment with a semicircular pale pubescent area; venter dark ferruginous, with a broad yellow band on third segment,

♂. Similar to the female, except as follows: ground-colour of head and thorax black, not red; labrum pale reddish; clypeus and supraclypeal area bright yellow, and the bright yellow lateral face-marks wholly filling space between clypeus and eye; yellow band along posterior orbits variable, either extending along whole length of orbit or broken in middle; basal part of first abdominal segment black; apical plate of abdomen broad, truncate, not emarginate.

Hab. Liguanea Plain, Jamaica, Nov.-Dec. 1911, three of each sex (*C. T. Brues*). One was collected by Mrs. Brues. The type is a female.

The genus is new to Jamaica, and the species is closely related to the various *Micronomadae* inhabiting the western United States. From the species of Cuba, Haiti, and Porto Rico it is readily known by the red head and thorax of the female. By the red legs, it resembles *N. krugii*, Cress., from Porto Rico rather than *N. cubensis*, Cress., from Cuba.

Halictus (Chloralictus) bruesi, sp. n.

♂.—Length about or nearly 5 mm.

Entirely pale brownish testaceous, including antennæ and legs; clypeus prominent; face with fine white hair; eyes moderately emarginate within; antennæ long, the flagellum thick. Wings clear, iridescent, the stigma and nervures sepia; head and thorax dullish, abdomen shining; thorax with thin white hair.

The following characters are microscopic: front finely and very densely and evenly punctured; mesothorax microscopically tessellate, with rather widely separated very distinct punctures; area of metathorax with about twenty fine but distinct more or less wavy ridges; punctures of abdomen very fine, becoming moderately dense toward bases of segments, absent on apices of segments, which are transversely striatulate; first r. n. joining second s.m. a little before the beginning of its last fourth; outer nervures scarcely at all weakened.

Hab. Liguanea Plain, Jamaica, Nov.-Dec. 1911, 1 ♂ (*C. T. Brues*).

Easily known by its singular coloration, which made me think at first that it might be immature or diseased; but it is perfectly formed in every way, and doubtless normal. Many species of *Halictus* are more or less testaceous, or have the abdomen orange or brownish. The present insect is perhaps nearest to the Brazilian *H. nanus* (Smith), which, however, has the head and thorax yellowish green.

Halictus leichardti, Cockerell.

The type of *H. leichardti* is abraded; *H. paracolletinus*, Ckll., described from fresh specimens, is the same species. I arrived at this conclusion after the types had been returned to the British Museum, but Messrs. Meade-Waldo and Turner have kindly compared the types, and have no doubt that the names refer to a single species.

Megachile liguaneensis, sp. n.

♀.—Length about 9 mm.

Black, with white pubescence (a slight admixture of dark hairs on vertex and scutellum); legs bright ferruginous, hair on inner side of tarsi orange-ferruginous, very bright on hind basitarsi; ventral scopa white, entirely black on last two segments; clypeus densely punctured, with a smooth shining median stripe, the lower margin feebly denticulate; mandibles quadridentate; flagellum beneath dark rufo-fuscous; vertex dull, densely and minutely punctured; mesothorax and scutellum sculptured like vertex; no anterior hair-spots on mesothorax, but a very conspicuous tuft of white hair on each side above the hind end of tegula; a rather feeble hair-band in scutello-mesothoracic suture, but long white hair behind scutellum. Wings slightly dusky, especially in costal region; stigma dull ferruginous, nervures fuscous. Abdomen shovel-shaped, but not of the very broad type, shining, with narrow and weak white hair-bands; tegulae piceous, obscurely reddish toward the margins.

Hab. Liguanea Plain, Jamaica, Nov.—Dec. 1911 (*Mrs. C. T. Brues*).

From the same locality Mr. Brues sent also *M. lanata* (Fabr.), and *M. poeyi*, Guér. In Friese's table of West Indian *Megachile*, this runs to *M. deceptrix*, Smith, a larger and otherwise different insect, the type of which I have examined. It may also be compared with *M. poeyi*, which is larger and has yellow abdominal bands. I have not been able to find any species from North or South America which it closely resembles.

Megachile huascari, sp. n.

♀.—Length about or almost 13 mm.

Robust, broad, black, with black hair, mixed with dull white on face around antennæ; ventral scopa light orange, last segment with scanty black hairs; clypeus shining but closely punctured, with no median smooth line, its anterior

margin with a very broadly triangular smooth impunctate space, the actual margin, which is straight, deeply transversely channelled; antennæ entirely black; vertex finely and quite closely punctured; mesothorax closely punctured at sides, but the middle very broadly smooth and shining, with widely scattered punctures; tegulae with reddish margins. Wings fuliginous; spurs ferruginous.

Hab. Huascaray, Peru, 6500 ft., Sept. 21 (*C. H. T. Townsend*).

Very close to *M. piurensis*, Ckll., which is known only in the male. I was at first disposed to regard it as the female of that species, but as the sculpture of the mesothorax is entirely different, and the insect comes from a different locality, it must be presumed to be distinct. Superficially, seen from above, *M. huascari* might be taken for a rather small example of *M. xylocopoides*, Sm. The locality is evidently named after Huascar, to whom I have accordingly dedicated the bee.

Megachile microsoma, Cockerell.

Manaos, Brazil (*B. Piffard*). British Museum.

Megachile agustini, Cockerell.

Abbott Ranch, Rito de los Frijoles, New Mexico, Aug. 1912 (*Cockerell*).

Megachile sayi sancta, subsp. n.

♂.—Like *M. sayi heterodonta*, but hair of face strongly suffused with tawny; wings not reddened (the stigma is clear ferruginous), but with a strong dusky apical cloud; middle of mesothorax covered with black hair; eyes purplish black instead of green; fifth dorsal abdominal segment, before the band, with the hair entirely black, long and coarse. Legs as in *heterodonta*.

Hab. Santa Fé, New Mexico, August 3, 1912 (*Cockerell*).

Megachile pugnata, Say.

♂.—Santa Fé, New Mexico, August 1, 1912, at flowers of *Hymenoxys floribunda*. (*Cockerell*.)

Epeolus novomexicanus, sp. n.

♂.—Length 6 mm.

Black, with the tubercles, ends of axillar teeth, and venter of abdomen ferruginous; antennæ clear ferruginous, the scape blackened above; legs clear bright ferruginous, the

spurs of the same colour; tegulae light apricot-colour; apical plate of abdomen red, rounded, entire; eyes pale green; face, except lower part, covered with brilliant silver-white appressed hair; clypeus minutely granular-punctate; labrum dark, obscurely reddish; mandibles red; hair of cheeks and vertex, and thorax above, slightly tinged with ochreous; mesothorax finely rugose, its hair dense around the margins and in anterior middle, but not forming clean-cut markings; pleura densely covered with hair; axillar teeth broadly triangular, rather sharp. Wings dusky along apical margin. Abdomen with broad entire yellowish-white apical hair-bands, the other parts more thinly hairy; first segment densely hairy, except for a straight median band, the margins of which are very indistinctly defined; beneath the hair the bases of the segments become more or less reddish, while the apical margins become ivory-white.

Hab. Santa Fé, New Mexico, Aug. 2, 1912 (*Cockerell*).

A pretty little species, best known by the red antennae and ill-defined band on first abdominal segment. These characters will at once separate it from *E. beulahensis*, Ckll., which is similar in general appearance. There is no distinct spot of pubescence on the anterior part of the mesothorax, such as is found in *E. crucis*, Ckll.

Melissodes mizca, Cockerell.

♀.—Abbott Ranch, Rito de los Frijoles, New Mexico, Aug. 1912 (*Cockerell*). The specimen differs from the type in having much more black hair on the legs.

Andrena mellea, Cresson.

♀.—Abbott Ranch, Rito de los Frijoles, New Mexico, Aug. 1912 (*Cockerell*).

Prosopis aposuara, Cockerell.

♂.—Stradbroke Island, Oct. 2, 1911 (*H. Hacker*); Queensland Museum, 50. Gilgai, N.S.W., Dec. 1911 (*Froggatt*, 212).

Meroglossa persulcata, Cockerell.

♂.—Brisbane, April 26, 1911 (Queensland Museum, 67).

Palaeorhiza perviridis (*Cockerell*).

♀.—Kuranda (*F. P. Dodd*); Queensland Museum, 68.

Gnathoprosopis hackeri, sp. n.

♂.—Length a little over 7 mm.

Robust, black; mandibles broad and short, black; head rather broad; face below antennæ entirely smooth and shining pale yellow, with very sparse punctures; supra-clypeal area broad, pale yellow; lateral marks ending in a point near orbital margin at about level of middle of front; scape scarcely swollen, pale yellow in front; flagellum short and thick, ferruginous beneath; swollen upper border of prothorax and tubercles bright chrome-yellow; rest of thorax entirely dark; mesothorax closely and finely punctured; area of metathorax coarsely and very irregularly cancellate, posteriorly with a transverse keel. Legs brownish black, the anterior tibiæ in front, a stripe on middle tibiæ, and base of hind tibiæ yellow; tarsi reddened apically; tegulæ piceous. Wings hyaline, stigma and nervures dark; first r. n. entering apical end of first s.m., which is very long. Abdomen broad, shining, but finely and closely punctured, with conspicuous erect hair, which is greyish white except apically, where it is dark fuscous; ventral teeth extremely large, conical, with no ridge between them.

Hab. Sunnybank, Brisbane, Queensland, Jan. 17, 1912 (*H. Hacker*). Queensland Museum, 36.

Nearest to *G. bituberculata* (Smith), but easily separated by the light yellow face and the relatively slender scape. The type of this genus will be known as *Gnathoprosopis euxantha* (Ckll.), the name *xanthopoda* being preoccupied.

Prosopis kelvini, sp. n.

♀.—Length nearly 8 mm.

Black; rather robust; head rather elongate; face-markings reduced to an elongate-oval yellow spot on each side, its upper end level with antennæ; cheeks small; face finely longitudinally striate, the high and narrow clypeus with a fine median longitudinal keel; mesothorax and scutellum very finely but distinctly punctured; the swollen upper border of prothorax and tubercles bright chrome-yellow; no other yellow on thorax; postscutellum with fine short light pubescence, especially anteriorly; area of metathorax with the basal part very irregularly cancellate, no transverse keel. Legs black; anterior tibiæ with an obscure reddish spot in front near base; anterior and middle femora short and broad; tegulæ piceous. Wings clear, stigma and

nervures dark; second s.m. long, receiving both recurrent nervures. Abdomen very finely punctured, scarcely at all hairy.

Hab. Kelvin Grove, Brisbane, Queensland, Nov. 20, 1911 (*H. Hacker*). Queensland Museum, 33.

Runs in my table of *Prosopis* to the vicinity of *P. amacula*, from which it is easily known by the reduced face-markings. It resembles in its markings *P. flavojugata*, Ckll., but that species has a much shorter head, the yellow spots on the face lower down, and the quadrate second submarginal cell entirely different from that of *kelvini*. In *P. amacula* also this cell is very much shorter than in *kelvini*. The second s.m. of *kelvini* is formed much as in *P. alcyonea* (Erichs.), which is in other respects a totally different insect.

Prosopis leai, sp. n.

♂.—Length about $6\frac{1}{2}$ mm.

Rather slender; the abdomen subclavate, narrowed basally; black, with yellow markings; head moderately elongate, face below antennæ yellow (reddened by cyanide in type), the very broad supraclypeal mark obtusely rounded or subtruncate above, the lateral marks ending abruptly at level of antennæ, the lower margin of clypeus dark; scape with a yellowish mark in front; flagellum long, ferruginous beneath; the large tubercles, scutellum, and postscutellum, with a small elongate mark touching each anterior corner of scutellum, very bright chrome-yellow; no other yellow on thorax; mesothorax dull, the dense punctures so minute as to give the effect of a minutely granular surface; area of metathorax shining, without distinct sculpture. Legs black; anterior tibiæ ferruginous in front; tegulæ piceous. Wings dusky at apex; nervures and stigma dark; first r. n. joining first t.-c.; second s.m. longer below than high, but not much elongated. Abdomen dull, scarcely hairy; venter normal.

Hab. National Park, New South Wales (*Lea*, 10716). Froggatt Coll. 143.

Best compared with *P. chrysognatha*, Ckll., and *P. aposuara*, Ckll., from both of which it differs by the much finer sculpture of the mesothorax. The broad supraclypeal area also separates it at once from *P. aposuara*. The second submarginal cell is shorter than in *chrysognatha*.

Nomia lyonsiæ, sp. n.

♀.—Length nearly 11 mm.

Black ; the first four abdominal segments with moderately broad emerald-green bands suffused with vermilion ; scutellum depressed in middle, but not bituberculate ; postscutellum with a pair of large lamellæ or teeth ; clypeus with a fine keel. Wings dusky hyaline.

So exactly like the Indian *N. ellioti*, Smith, that it is difficult to point out many differences. The postscutellar teeth are larger than in *ellioti*, and the punctures of the mesothorax are smaller and evidently of two sizes. The abdomen is more strongly and closely punctured, especially on the second segment. The antennæ are dark, with the flagellum faintly reddish beneath toward the apex.

Hab. Brisbane, Queensland, at flowers of *Lyonsia* (Apocynaceæ), Feb. 6, 1912 (*H. Hacker*). Queensland Museum, 60.

It seems not altogether impossible that this is the female of *N. darwinorum*, Ckll., described from Port Darwin. The localities, however, are about 1800 miles apart, and probably the species are distinct. *N. lyonsiæ* agrees structurally with *N. rubroviridis*, Ckll., but differs by the black hair covering apex of abdomen, partly black hair on thorax above, rather large punctures of mesothorax, and only moderately broad abdominal bands.

Gastropsis pubescens (Smith).

Brisbane, Queensland, Nov. 27, 1911 (*H. Hacker*). Queensland Museum, 54.

Dioxys aurifuscus (Titus).

Dioxys fulvohirta, Duce, from Durango, Colorado, is apparently a synonym. Titus described his species in a distinct genus (*Chrysopheon*), and it was overlooked by Duce.

Xylocopa varians, var. *piurensis*, v. nov.

♀.—Like var. *incaram*, Ckll., but hair on outer side of middle and hind basitarsi and end of hind tibiæ shining cream-colour ; herein it resembles var. *ecuadorica*, Ckll., but it differs from that in having the hair on inner side of tarsi (especially hind tarsi) bright ferruginous.

Hab. Piura, Peru (*C. H. T. Townsend*).

The varieties or races of *X. varians* may be separated thus:—

Tegulae red; hair on inner side of hind tarsi black. (S. Brazil.)	<i>varians</i> , Sm.
Tegulae black	1.
1. Hair on hind tarsi all red. (Peru.)	<i>incarum</i> , Ckll.
Hair on outer side of hind tarsi cream-colour	2.
2. Hair on inner side of hind tarsi black. (Ecuador.)	<i>ecuadorica</i> , Ckll.
Hair on inner side of hind tarsi red. (Peru.)	<i>piurensis</i> , Ckll.

Xylocopa splendidula charapensis, subsp. n.

♀.—Agrees with *X. splendidula*, Lep. (Mendoza specimen compared), except that the abdomen is more closely punctured and the hair on outer side of hind basitarsi (except at apex) is brilliant orange-ferruginous, while the middle basitarsi have a band of hair of the same colour.

Hab. Rio Charape, Peru, 5000 feet, Sept. 12-16 (*C. H. T. Townsend*).

Xylocopa brasilianorum (L.).

♂.—Cosma, Peru, April 6, 1912 (*C. H. T. Townsend*).

The yellow clypeus has a large diamond-shaped black mark, produced above to the margin, which is narrowly black-edged.

Trigona nigerrima, Cresson.

Rio Charape, Peru, 5000 feet, Sept. 12-16 (*C. H. T. Townsend*).

I cannot separate this from Guatemalan specimens. The species is new to Peru.

Bombus vogti, Friese.

A worker from Huascaray, Peru, 6500 feet, Sept. 21, 1911 (*C. H. T. Townsend*), agrees with Friese's brief description.

Bombus butteli, Friese.

Huascaray, Peru, 6500 feet, Sept. 21, 1911, workers and males (*C. H. T. Townsend*).

A peculiar species, apparently nearest to *B. funebris*, Smith, which also occurs in Peru.

Nomia mesillensis, Cockerell.

At Santa Fé, New Mexico, in the first week of August, 1912, I took a good series of *Nomia* at flowers of *Peritoma serrulatum*. To my surprise I find that the females are all *N. mesillensis*, while the males are those ascribed by me (Ann. & Mag. Nat. Hist., Oct. 1908, p. 333) to *N. foxii*. Fox described his *punctata* (*foxii*, D. T.) from the female, and the "distinctly punctured" abdomen clearly indicates the female I have called *foxii* rather than *mesillensis*. This female (from Las Cruces and Rincon, New Mexico) is, however, evidently the recently published *N. moctezumæ*, Crawford, which must, I think, be a synonym of *N. foxii*. The matter will be settled by the examination of the type of *foxii*, from Vega, S. José, N. M.

Nomia nevadensis, Cresson.

Santa Fé, New Mexico, Aug. 3, 1912 (*Cockerell*),

Nomia savignyi, Kohl.

Multan, India, Sept. 1909 (*E. Comber*). British Museum.

Nomia comperta, sp. n.

♂.—Length $10\frac{1}{2}$ mm.

Black, with approximately the basal half of abdomen red; head broad; mandibles with a small rufous spot beyond middle; face densely covered with shining creamy-tinted hair; vertex shining, with very large, scattered, irregularly placed punctures; antennæ long, flagellum crenulate, dull red beneath; thorax brilliantly shining, the mesothorax and scutellum with scattered strong punctures; area of metathorax shining, with a minutely granular surface, but no ridges, its lateral extensions with a rather strong sulcus running down the middle; hair of thorax thin and long, white, very faintly creamy-tinted dorsally. Legs shining brown-black, with pale hair; hind coxæ with a small apical tubercle posteriorly; hind femora slightly swollen; hind tibiæ and tarsi normal; spurs very pale reddish; tegulæ brown, with the margin hyaline, not enlarged. Wings hyaline basally, dilute reddish-fuliginous apically; stigma pale orange-testaceous, nervures testaceous; second s.m. approximately square, receiving first r.n. a little beyond middle. Abdomen dullish sericeous, the hind margins of the segments shining; first segment with the basal half blackish, with an interrupted red band, the apical part clear

red (orange-ferruginous); second segment entirely clear red; third red, with a large, suffused, dusky, dorsal shade; remaining segments black; third and following segments with apical bands of white tomentum, such bands also at sides of second; hair at apex of abdomen white; fourth ventral with a prominent median apical lobe.

Hab. Nasik, India (*E. Comber*). British Museum.

Runs in Bingham's table to *N. pilipes*, Smith, but the colour of the pubescence and wings is so different that it cannot be the male of that species. There is a striking superficial resemblance to *N. phenacura*, Ckll., also found at Nasik, but the sculpture of the thorax is entirely different, especially that of the metathoracic area.

LXI. — *A Revision of the Pœciliid Fishes of the Genera Rivulus, Pterolebias, and Cynolebias.* By C. TATE REGAN, M.A.

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THE three closely related genera here dealt with are the neotropical Fundulinæ*. In them the snout is short, the margin of the eyes is not free, and the gill-membranes are separate. The mouth is rather wide and transverse, with the præmaxillaries protractile, but not produced, and the lower jaw prominent and very oblique; the teeth are subconical, in bands, with an outer series of enlarged and spaced teeth, more or less canine-like, a lateral pair in the lower jaw being usually the strongest. The membrane connecting the præmaxillary with the lower jaw folds when the mouth is closed so as to fit into the right angle formed by the very narrow vertical præorbital and the horizontal nasal. The pectorals are placed low and the pelvics are not far in advance of the anal.

I give a list of the specimens in the British Museum collection, including the types of four species now described as new. Two of these, *Rivulus strigatus* from the Amazon and *Cynolebias nigripinnis* from the La Plata, have been

* Except that a few species of the nearctic genus *Fundulus* occur in Central America.

I take this opportunity of proposing the new generic name *Petalurichthys*, to replace *Petalosoma*, Regan, 1908, as Mr. C. O. Waterhouse has kindly called my attention to the fact that this is preoccupied in Coleoptera (Lewis, *Ann. & Mag. Nat. Hist.* (7) xii. 1903, p. 418). There are two species of this neotropical Pœciliid genus, viz. *Petalurichthys cultratus*, Regan, 1908, and *P. amazonum*, Regan, 1911.